

Appl. No. 09/683,322
Reply to Office action of May 5, 2004

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of diagnosing cardiac syndromes, the method comprising the acts of:
 - acquiring data from a first type of diagnostic test;
 - processing the data from the first type of diagnostic test to produce an indicator;
 - acquiring data from a second type of diagnostic test different than the first type of diagnostic test;
 - processing the data from the second type of diagnostic test to produce a second indicator;
 - combining the indicators; and
 - calculating a risk of a cardiac syndrome based on the combination of indicators.
2. (Original) A method as set forth in claim 1, further comprising the acts of acquiring data from a third diagnostic test and processing the data from the third diagnostic test to produce a third indicator.
3. (Original) A method as set forth in claim 1, wherein the act of combining the indicators includes a Mamdani inference method.
4. (Original) A method as set forth in claim 1, wherein the act of calculating a risk of a cardiac syndrome includes a Mamdani inference method.
5. (Original) A method as set forth in claim 1, wherein the act of acquiring data from a first diagnostic test includes acquiring diagnostic data of a first type.
6. (Original) A method as set forth in claim 5, wherein the act of acquiring data from a first diagnostic test is performed by an ECG acquisition module.
7. (Original) A method as set forth in claim 5, wherein the act of acquiring data from a first diagnostic test is performed by a biochemical testing module.

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8. (Original) A method as set forth in claim 5, wherein the act of acquiring data from a first diagnostic test is performed by a history acquisition module.
9. (Original) A method as set forth in claim 5, wherein the act of acquiring data from a first diagnostic test is performed by a nuclear imaging module.
10. (Original) A method as set forth in claim 5, wherein the act of acquiring data from a first diagnostic test is performed by an ultrasonic imaging module.
11. (Original) A method as set forth in claim 5, wherein the act of acquiring data from a second diagnostic test includes acquiring diagnostic data of a second type that differs from the diagnostic data acquired by the first diagnostic test.
12. (Original) A method as set forth in claim 11, wherein the act of acquiring data from a second diagnostic test includes acquiring data from an ECG acquisition module.
13. (Original) A method as set forth in claim 11, wherein the act of acquiring data from a second diagnostic test includes acquiring data from a biochemical testing module.
14. (Original) A method as set forth in claim 11, wherein the act of acquiring data from a second diagnostic test includes acquiring data from a history acquisition module.
15. (Original) A method as set forth in claim 11, wherein the act of acquiring data from a second diagnostic test includes acquiring data from a nuclear imaging module.
16. (Original) A method as set forth in claim 11, wherein the act of acquiring data from a second diagnostic test includes acquiring data from an ultrasonic imaging module.
17. (Original) A method as set forth in claim 1, wherein the method is for diagnosing acute cardiac syndromes.

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18. (Original) A cardiac syndrome diagnostic system comprising:
a first cardiac activity acquisition device operable to generate a first cardiac activity data;
a second cardiac activity acquisition device operable to generate a second cardiac activity data;
one or more processors to generate a first and second indicator based on the first and second cardiac activity data, respectively; and
a fusion engine operable to receive the first and second indicators, generate a first and second set of degrees of membership based on the first and second indicators, and generate a risk of a cardiac syndrome based on a combination of the first and second sets of degrees of membership and a set of predetermined rules.
19. (Original) A system as set forth in claim 18, wherein the fusion engine includes a fuzzifier.
20. (Original) A system as set forth in claim 18, wherein the fusion engine includes an inference engine.
21. (Original) A system as set forth in claim 18, wherein the fusion engine includes a defuzzifier.
22. (Original) A system as set forth in claim 18, wherein the system diagnoses acute cardiac syndromes.

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23. (Original) A diagnostic system comprising:
a first physiological activity acquisition module;
a second physiological activity acquisition module; and
a fusion engine operable to receive data from the first and second modules and to generate a risk of ACS based on a combination of the data received from the first and second modules.
24. (Original) A system as set forth in claim 23, wherein the combination of the data received from the first and second modules is based on fuzzy logic algorithms.
25. (Original) A system as set forth in claim 23, wherein the first physiological activity acquisition module performs a first physiological test on physiological data of a first type.
26. (Original) A system as set forth in claim 25, wherein the first physiological activity acquisition module is an ECG acquisition module.
27. (Original) A system as set forth in claim 25, wherein the first physiological activity acquisition module is a biochemical testing module.
28. (Original) A system as set forth in claim 25, wherein the first physiological activity acquisition module is a history acquisition module.
29. (Original) A system as set forth in claim 25, wherein the first physiological activity acquisition module is a nuclear imaging module.
30. (Original) A system as set forth in claim 25, wherein the first physiological activity acquisition module is an ultrasonic imaging module.
31. (Original) A system as set forth in claim 25, wherein the second physiological activity acquisition module performs a second physiological test on physiological data of a second type that is different than the first type of physiological data.

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32. (Original) A system as set forth in claim 31, wherein the second physiological activity acquisition module is an ECG acquisition module.
33. (Original) A system as set forth in claim 31, wherein the second physiological activity acquisition module is a biochemical testing module.
34. (Original) A system as set forth in claim 31, wherein the second physiological activity acquisition module is a history acquisition module.
35. (Original) A system as set forth in claim 31, wherein the second physiological activity acquisition module is a nuclear imaging module.
36. (Original) A system as set forth in claim 31, wherein the second physiological activity acquisition module is an ultrasonic imaging module.

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37. (Original) A method for diagnosing acute cardiac syndromes ("ACS"), the method comprising the acts of:

- acquiring ECG data;
- processing the ECG data to produce an ECG indicator;
- acquiring biomarker data;
- processing the biomarker data to produce a biomarker indicator;
- combining the indicators; and
- calculating a risk of ACS using fuzzy logic rules.

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38. (Original) A method of diagnosing cardiac syndromes, the method comprising the acts of:

acquiring data from a plurality of diagnostic tests;
processing the data from the plurality of diagnostic tests to produce a plurality of indicators;
combining the plurality of indicators; and
calculating a risk of a cardiac syndrome based on the combination of the plurality of indicators.

39. (Original) A method as set forth in claim 38, wherein the cardiac syndrome is an acute cardiac syndrome.

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40. (Previously presented) A method of determining a risk for a cardiac event in a patient, the method comprising:
- acquiring physiological patient data from a plurality of medical modalities;
 - processing the physiological data to produce a plurality of indicators;
 - applying a set of input membership functions to each of the indicators to produce a degrees of membership for each of the indicators;
 - comparing a set of diagnostic rules to each of the degrees of membership for each of the indicators;
 - generating a rule output for each comparison;
 - combining the rule outputs to produce a combined output;
 - assigning the combined output an output function value; and
 - comparing the output function value to a plurality of output membership functions to determine the patient's risk of a future cardiac event.
41. (Previously presented) A computer program embodied by a computer readable medium capable of being executed by a computer, the computer program for use in a cardiac risk prediction system, the computer program comprising:
- instructions that acquire patient data from a plurality of medical modalities;
 - instructions that generate an indicator for the patient data acquired from each medical modality; and
 - instructions that fuzzify, compute, combine, and defuzzify the indicators to determine a patient's risk for a future cardiac event.